

What is claimed is:

1. A rubber composition comprising: (1) a rubbery polymer and (2) from 1 phr to 30 phr of pre-crosslinked polymer particles, wherein the pre-crosslinked polymer particles have a particle size which is within the range of 30 nm to 500 nm, wherein the pre-crosslinked polymer is comprised of repeat units that are derived from at least one monomer selected from the group consisting of acrylate monomers, vinyl aromatic monomers, acrylonitrile monomers, and vinyl halide monomers, and wherein the pre-crosslinked polymer has a glass transition temperature which is within the range of 30°C to 200°C.
2. A rubber composition as specified in claim 1 wherein the pre-crosslinked polymer is further comprised of repeat units that are derived from a crosslinking monomer.
3. A rubber composition as specified in claim 2 wherein the crosslinking monomer is incorporated into the pre-crosslinked polymer at a level which is within the range of 1 weight percent to 30 weight percent, based upon the total monomers incorporated into the pre-crosslinked polymer.
4. A rubber composition as specified in claim 3 wherein the pre-crosslinked polymer is present in the rubber composition at a level which is within the range of 2 phr to 20 phr.
5. A rubber composition as specified in claim 3 wherein the pre-crosslinked polymer is present in the rubber composition at a level which is within the range of 4 phr to 15 phr.
6. A rubber composition as specified in claim 4 wherein the pre-crosslinked polymer is in the form of particles having a particle size which is within the range of 40 nm to 250 nm.
7. A rubber composition as specified in claim 5 wherein the pre-crosslinked

polymer is in the form of particles having a particle size which is within the range of 100 nm to 200 nm; and wherein the monomer is acrylonitrile.

5 8. A rubber composition as specified in claim 1 wherein the pre-crosslinked polymer has a number average molecular weight of at least 10,000,000.

 9. A rubber composition as specified in claim 2 wherein the pre-crosslinked polymer has a number average molecular weight of at least 50,000,000.

10 10. A rubber composition as specified in claim 8 wherein the pre-crosslinked polymer is in the form of particles that are essentially spherical in shape; and wherein the pre-crosslinked polymer is further comprised of repeat units that are derived from a conjugated diolefin monomer.

15 11. A rubber composition as specified in claim 1 wherein the monomer is an acrylate monomer.

 12. A rubber composition as specified in claim 1 wherein the monomer is a vinyl aromatic monomer.

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 13. A rubber composition as specified in claim 1 wherein the monomer is a vinyl halide monomer.

 14. A rubber composition as specified in claim 12 wherein the vinyl aromatic monomer is styrene.

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 15. A rubber composition as specified in claim 2 wherein the crosslinking monomer is selected from the group consisting of divinyl benzene and ethylene glycol dimethacrylate.

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 16. A rubber composition as specified in claim 2 wherein the pre-crosslinked polymer is in the form of core-shell particles having a core and a shell.

17. A rubber composition as specified in claim 16 wherein the polymer in the core is crosslinked.

5 18. A rubber composition as specified in claim 16 wherein the polymer in the shell is crosslinked.

19. A rubber composition as specified in claim 11 wherein the acrylate monomer is methyl methacrylate.

10 20. A tire which is comprised of a generally toroidal-shaped carcass with an outer circumferential tread, two spaced beads, at least one ply extending from bead to bead and sidewalls extending radially from and connecting said tread to said beads; wherein said tread is adapted to be ground-contacting; and wherein the tread is comprised of a rubber composition comprising: (1) a rubbery polymer and (2) from 1 phr
15 to 30 phr of pre-crosslinked polymer particles, wherein the pre-crosslinked polymer particles have a particle size which is within the range of 30 nm to 500 nm, wherein the pre-crosslinked polymer is comprised of repeat units that are derived from at least one monomer selected from the group consisting of acrylate monomers, vinyl aromatic monomers, acrylonitrile monomer, and vinyl halide monomers, and wherein the pre-
20 crosslinked polymer has a glass transition temperature which is within the range of 30°C to 200°C.